

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/553,153  
Applicants : Andrew GOLDSMITH  
Filed : February 7, 2006  
TC/A.U. : 1616  
Examiner : Alton Nathaniel Pryor  
Title : An aqueous, flowable concentrate composition of  
pendimethalin  
Docket No. : 3165-138  
Customer No. : 6449  
Confirmation No. : 9052

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

**Mail Stop AF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

The Applicant hereby requests a pre-appeal brief review of the final rejections of the claims in the above-identified application. This Request is being submitted in response to the Office Action mailed March 2, 2010. The reasons for the request are set forth in the attached Set of Arguments For Which Review Has Been Requested.

Applicant submits herewith a Notice of Appeal and Petition for Extension of Time and the required fees. In the event that any additional fees may be due with respect to this paper, such fees may be charged to Counsel's Deposit Account No. 02-2135.

Respectfully submitted,

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**SET OF ARGUMENTS FOR WHICH REVIEW HAS BEEN REQUESTED**

Applicant appeals from the improper rejections of claims 15, 17-20, 22, 23 and 26-31. Final Office Action dated March 2, 2010 ("Final Office Action"). In particular, independent claims 15 and 28 and dependent claims 17-20, 22, 23, 26, 27 and 29-31 were improperly rejected under 35 U.S.C. § 103(a) as being unpatentable by reason of obviousness over WO 00/05951 ("van Koppenhagen") in view of US Patent No. 5,705,174 ("Benoff") and further in view of EP 0279068 ("Martin"). Final Office Action at 2-4. Applicant filed a response to the Non-Final Office Action dated August 6, 2009 ("Non-Final Office Action") on January 6, 2010 ("Jan. 6 response"), which proves the patentability of claims 15, 17-20, 22, 23 and 26-31.

The rejections should be withdrawn under this pre-appeal brief review because the Examiner made a clear error when formulating the rejection of the claims. The Applicant's reasons for review are not based in mere interpretations of the claims or prior art, but instead are based in law and fact. In particular, the Examiner has not shown that each element of at least the independent claims is rendered obvious by the cited prior art, whether the references are considered alone or in combination. Final Office Action at 2-4. These errors resulted in an improper rejection of the claims that must be withdrawn. As a result of these errors, the claim rejections should be withdrawn and all of the currently pending claims should be allowed.

**I. The Claim Rejections under 35 U.S.C. § 103(a) over the Combination of van Koppenhagen, Benoff and Martin is Improper Because these References do not Disclose Each Element of the Independent Claims**

Despite clear evidence to the contrary, the Examiner maintained the rejection of claims 15, 17-20, 22, 23 and 26-31 as obvious under 35 U.S.C. § 103(a) over van Koppenhagen in view of Benoff and further in view of Martin (collectively, the "cited references"). The evidence clearly supports the Applicant's position that the rejection fails to show that the cited references disclose or suggest at least the claim limitation of the microencapsulation of pendimethalin using polyurea or polyurethane.

According to the MPEP, a claim is obvious only if prior art references teach or suggest all of the claim limitations, or if the differences between the teachings of the "prior art and the claimed invention would have been obvious to one of ordinary skill in the art." MPEP § 2141.

van Koppenhagen is directed to an aqueous composition comprising pesticides which control weed growth. Martin is directed to oil-in-water emulsion compositions comprising

pendimethalin. Benoff is directed to a process for the preparation of microcapsule compositions. The Examiner argues that van Koppenhagen teaches all of the elements of independent claims 15 and 28, except the use of pendimethalin as the herbicide, the microencapsulation of pendimethalin using polyurea or polyurethane, the anionic oligomers or polymers, the boron containing compound<sup>1</sup> and the specific ratio of microencapsulated pendimethalin to non-encapsulated pendimethalin. Final Office Action, p. 3. Thus, the Examiner concedes that the cited references do not disclose each element of the independent claims.

**II. The Claim Rejections under 35 U.S.C. § 103(a) over the Combination of van Koppenhagen, Benoff and Martin is Improper Because these References do not Suggest Each Non-Disclosed Element of the Independent Claims**

However, the Examiner argues that Martin teaches that pendimethalin is an herbicide, and that Benoff teaches that pendimethalin can be encapsulated in polyurea or polyurethane. He argues further that the remaining claim elements would be obvious to one of skill in the art from the teachings of van Koppenhagen. Final Office Action, pp. 3-4.

Applicants note again that the Examiner concedes that the cited references do not disclose at least the claim limitations regarding the microencapsulation of pendimethalin using polyurea or polyurethane, wherein the polymeric wall material is water insoluble. Final Office Action, p. 3. However, the Examiner argues that this claim limitation would be obvious to one of skill in the art from the teachings of van Koppenhagen, and further that one of skill in the art would be motivated to make a formulation containing a mixture of encapsulated and non-encapsulated active ingredients because that would result in a product with both immediate release and extended release characteristics. Final Office Action, pp. 3-5.

The Examiner's reasoning is mistaken in making these rejections. First, Applicants note that it is an essential feature of van Koppenhagen's microcapsules that the polymeric wall material contains a base sensitive unit that triggers releases of the encapsulated contents on exposure of the capsules to basic conditions. van Koppenhagen, p. 1, para. 1; p. 3, summary of the invention, para. 2; p. 4, detailed description of the invention, para. 1. From p. 23 it becomes

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<sup>1</sup> Applicants are unsure why the Examiner refers to the "instant boron containing non-ionic surfactant compound" which is allegedly contained in the claimed concentrate composition. There is no boron containing non-ionic surfactant contained in the claimed composition. Applicants assume that the Examiner refers to the non-ionic surfactant compound of component v, in particular to the variable B, which is of course not a boron atom, but rather is defined as being 1,2-ethylene, 1,3 propylene or 1,2 propylene.

clear that the polymeric wall in van Koppenhagen's microcapsules can be cleaved by a base under mild (physiological) conditions, namely at pH 8-10, which is the pH in the insect's gut. On page 23, where it is stated that "[t]he capsules of this invention have particular utility in control of insects which have an alkaline environment in their gut" and "[t]o be efficacious for this purpose, the capsules of this invention must include a cross-linking agent which on contact with a base at a pH of about 8-10 will cause complete or near complete release of the encapsulated insecticidal contents within four hours or less ...." In contrast thereto, the polyamide or polyurea wall material in the microcapsules of the present claims is water-insoluble and cannot be cleaved by the action of a base.

In addition, the Examiner argues that the urea-formaldehyde polymer in van Koppenhagen is water insoluble according to the teaching in US Patent No. 3,737,404 ("Berstein"). Final Office Action, p. 6, para. 1. The Examiner's line of reasoning is, however, wrong as Berstein does not relate to the polymers of van Koppenhagen. Rather, the teachings of Berstein relate to aqueous emulsion type paints and pigment bases therefore, which contain a certain amount of a substantially water-insoluble, high molecular weight, cross-lined urea-formaldehyde resin. Berstein, abstract. However, it is a non-sequitur to argue that simply because some urea-formaldehyde polymers are water insoluble, that all of the other existing urea-formaldehyde polymers must also be water insoluble. This is particularly true since, as discussed above, van Koppenhagen explicitly teaches that its polymers are water soluble.

Furthermore, regarding the applicability of Berstein's teachings to van Koppenhagen, van Koppenhagen teaches that the polymers are produced by

reacting an amino resin prepolymer [which is water soluble] with a compound having one or more ester or thioester groups which are cleaved under basic conditions and two or more functional groups capable of reaction with the resin. Preferably this compound is a cross-linking agent produced by reaction of a multifunctional C<sub>1</sub>-C<sub>20</sub> aliphatic or cycloaliphatic alcohol containing at least two, preferably at least 3, functional groups which are capable of esterification ... with one or more 2-(hydroxy or thiol) substituted C<sub>2</sub>-C<sub>6</sub> alkanolic acids.

van Koppenhagen, p. 3. The crosslinker used for producing the urea-formaldehyde polymers in van Koppenhagen contains reactive groups XH, namely OH or SH, which are capable of reaction with the amino resin prepolymer, but it also contains ester or thioester moieties which are cleaved under mild basic conditions. Hence, the urea-formaldehyde polymers produced by using

these esters will break down upon treatment with base as hydrolysis of the ester moiety in the crosslinker will produce amino resin prepolymer additionally having carboxylic acid groups which under basic conditions provide additional solubilisation. In short, the crosslinker used for producing the urea-formaldehyde polymers in van Koppenhagen is base labile and leads to break-down of the urea-formaldehyde polymers into water soluble fragments. Thus, the chemistry of the van Koppenhagen polymers also confirms Applicants argument that the van Koppenhagen polymers are water-insoluble. In contrast thereto, the polymers of Berstein are not produced using these base labile crosslinkers. Rather, they are produced by reacting an excess of formaldehyde with urea to produce a rigid, highly polymerized network which has no base-labile moieties. Berstein, col. 6, example A. Consequently, the polymer is and will remain water-insoluble even under extreme basic conditions.

Neither water insoluble polyamides nor water insoluble polyureas as in the claimed compositions or in the compositions of Benoff are water soluble or susceptible to become cleaved and broken down under the mild basic conditions of van Koppenhagen. Therefore, one of skill in the art would not have combined the teachings of van Koppenhagen with the teachings of Benoff to arrive at the subject matter of the present claims 15 and 28, as the microcapsule components of Benoff are incompatible with the microcapsule components of van Koppenhagen.

In addition, the Examiner contends that it would have been advantageous to make a composition comprising a material where a portion of material is encapsulated and the other portion is non-encapsulated. He argues that one would have been motivated to do this in order to make a composition that would have both control and immediate release of the active. Final Office Action, pp. 3-4. However, the Examiner has provided no evidentiary showing at all, much less one that supports his assertion, that it would have been advantageous to make a composition comprising a material where a portion of material is encapsulated and the other portion is non-encapsulated. Applicants note that the MPEP does provide that “[i]n certain circumstances ... and examiner may ... rely on ‘common knowledge’ in making [an obviousness] rejection.” MPEP § 2144.03. However, the MPEP also indicates that:

Any rejection based on assertion that a fact is well-known or is common knowledge in the art without documentary evidence to support the examiner’s conclusion should be judiciously applied. Furthermore, ... any facts so noticed

should be of notorious character and serve only to “fill in the gaps” in an insubstantial manner which might exist in the evidentiary showing .... It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based.

MPEP § 2144.03 (emphasis added). Thus, since this evidentiary showing is lacking, the Examiner’s argument must be based solely on impermissible hindsight reasoning. Further, one of skill in the art would have had to expect, contrary to the Examiner’s assertion, that including non-encapsulated material in the composition would destabilize the composition, because the non-encapsulated material might crystallize.

As discussed above, at least the polymeric wall material and the mixture of encapsulated and non-encapsulated components of the present claims differs from the material disclosed in the prior art which renders the present claims non-obvious. As such, the obviousness rejection of the present claims is an error and should be withdrawn.

### III. Conclusion

For the foregoing reasons, the pre-appeal brief review is appropriate and the rejection from which appeal has been made should be withdrawn now because of the clear errors. There simply is no evidence in the record to support the rejections. Accordingly, this application should not proceed to appeal and claims 15, 17-20, 22, 23 and 26-31 should be allowed.